SERVER FOR ENABLING THE AUTOMATIC INSERTION OF DATA INTO ELECTRONIC FORMS ON A USER COMPUTER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to computer software for filling out form documents over a computer network. More particularly, the present invention provides a method and system for automatically filling out fields in an electronic form document on a browser program using a remote server.

2. Discussion of Prior Art

Rapid growth and technological advances have changed the way most people currently use computers. During the early days of computers, a paradigm existed whereby there were more computer users than computers, and thus most computers had many assigned or dedicated users. As technology progressed, the personal computer ("PC") emerged, and it became commonplace for many computers to have only one user. Subsequent growth, particularly in the 1990s, has seen a culture or paradigm emerge whereby a computer user has access to more than one computer. As such, many individuals now have substantial access to multiple computers, for example at workplaces, schools, libraries, homes, and while traveling. This ratio of available computers per computer user should increase even further over time. It is therefore increasingly desirable to have computer-based programs and services that are accessible to a particular user from any computer, and not just those computers that have been programmed or adapted for that particular user.

One result of the recent explosion in computer growth is the amount of communication that now takes place between separate computers or computer systems. Many methods and systems exist for communications between computers or computer systems. This is reflected in many contexts, such as in the growth of the Internet. For purposes of the following discussion, several methods and systems will be described with reference to the Internet as a matter of convenience. It should be understood, however, that this is not intended to limit the scope of this discussion, and that many other applicable devices and protocols for computer communications exist, such as "Intranets", closed proxy networks, enterprise-wide networks, direct modem to modem connections, etc.

A browser program capable of running one or more windows may utilize a simple process for communicating information among computers over the Internet, as illustrated in FIG. **1**. Typically, an independent Internet user **106**, from a pool of random independent Internet users **101–106**, opens a browser window **131** in an Internet browser program, depicted by arrow **161**. User **106** then enters a request for an Internet Web page **144** (i.e. an HTML page) to be downloaded into browser window **131** belonging to user **106**. User **106**'s request is processed by the browser program, and a connection, depicted by arrow **162**, is made with the appropriate remote Internet resource **112**, typically an Internet Web server, selected from a pool of random remote **20** Internet resources **110–112**. Remote Internet resource **112** returns an HTML document **143**, depicted by arrow **163**. HTML document **143** contains substantially the entire content needed to display completed Web page **144**. Web page **144** is then displayed back to user **106** in browser window **131**, depicted by arrow **164**.

A model known in the art as the "ad server" model advances this simple browser program method for communicating information over the Internet. Many Internet Web pages are composite pages, requiring information in the form of images, text, and/or code to be pulled from several different remote Internet resources. Ad servers are generally used to integrate directed electronic material, such as banner advertisements, into such composite Internet Web pages. Thus, ad servers are one example of a remote Internet resource that separately contributes material to a composite Web page. A computer network communication process utilizing an ad server is also depicted in FIG. **1**.

Independent internet user **102** opens a browser window **130** in his or her Internet browser program, depicted by arrow **151**. User **102** then enters a request for an Internet Web page **142** to be downloaded into browser window **130**. This request is processed by the browser program, and a connection, depicted by arrow **152**, is made with the appropriate remote Internet resource **110**, typically an Internet Web server. Remote Internet resource **110** returns a core HTML document **140**, depicted by arrow **153**. Core document **140** contains some displayable content and an additional link to another image **141**, in this case a banner advertisement, stored at a separate remote Internet resource **120**, in this case an ad server. The browser program parses core document **140** to find and use this link to retrieve image **141**. The browser program then makes a connection, depicted by arrow **154**, with remote Internet resource **120** to retrieve image **141**. Remote Internet resource **120** returns image **141** to the browser program, depicted by arrow **155**. Image **141** is then merged with the displayable content of core document **140** to comprise completed Web page **142**. Web page **142** is then displayed back to user **102** in browser window **130**, depicted by arrow **156**. It should be appreciated that this process may be repeated many times for many separate portions of a particular Web page. In fact, many Web pages contain links to dozens of separate remote Internet resources, requiring this process to be repeated for each separate link.

Many remote Internet resources assign a specific user identifier containing state information, referred to as a session identifier or "cookie", to each particular user whenever a user connects to the resource, for example to retrieve an Internet Web page. This cookie is deposited into the user's browser program, which is instructed to show the cookie to the resource upon subsequent visits so that the resource can identify the user. The cookie conveys to the resource who the user is and what document or component thereof that the user wants. Use of these cookies is vital when components are assembled from various remote Internet resources into one integrated Web page, as a resource for a core HTML document may require several visits or communications from a Web browser while a page is assembled. Without such cookies, use of composite Web pages would be substantially hindered. Many resources assign temporary cookies for this purpose, which expire at the end of a session or when the browser program is closed. Other cookies, however, are assigned for longer durations for identification purposes beyond one Internet session. One such purpose identifies users, through long-term or persistent cookies, to specific user history and preferences, such that information, for example content specific banner advertisements related to such user history and preferences, may be directed at identified users in the future.

Proxy systems generally group many individual computers and computer users into a single network. This network is typically served by a single proxy server, which serves as a conduit for all communications among individual network users and between any individual network user and any